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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,931	09/08/2004	Dirk Schmidt	P/4306-9 (PCT)	7011

7590 04/13/2006

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EXAMINER

LAM, THANH

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 04/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/506,931	Applicant(s) SCHMIDT ET AL.	
	Examiner Thanh Lam	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 30 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 15-30 have been considered but are moot in view of the new ground(s) of rejection.

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

claim 30 (preliminary 3/14/2005) has not been canceled while reciting the new same claim 30 (1/30/2006) on top of the claim 30 (3/14/05) is improper. claims 30 (1/30/06) are considering and claim 30 (3/14/2005) would be canceled by Applicant in response to next office action.

Specification

3. The disclosure is objected to because of the following informalities: page 5, the last line "claim 1" is improper because specification can not to refer to claim.

Appropriate correction is required.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "a stator frame" "independently operable" "its own housing" "rotor frame" "electrical elements" "a

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temperature sensor” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 15-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stiesdal et al. (US 6781276) in view of Albrich et al. (US 6429554).

Regarding claims 15, and 30, Stiesdal et al. disclose a torque motor, comprising: a rotor (15); and a stator (20), the stator including a stator frame with iron cores (27) and electrical windings (28) arranged thereon, the iron cores and the electrical windings are arranged in at least one independent stator segment, each stator segment having its own housing (23 or 29), in which the segment's iron core and the segment's electrical winding are installed, each stator segment being configured to occupy a predetermined angular segment $\leq 180^\circ$ in the stator frame, the stator frame including a lower stator ring (18, fig. 3) and an upper stator ring (18, fig. 3) between which the at least one stator segment is positioned, each stator segment being detachably joined (see abstract) to the stator frame so that the segment can be installed and removed independently of

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other stator segments without damaging its electrical winding or the stator frame. but, Stiesdal et al. silent about each stator segment independently operable.

Albrich et al. disclose each stator segment (1a-1c) is independently operable.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Stator of Stiesdal et al. and adapt the teaching each stator segment independently operable (see motivation in col. 1, lines 42-50).

Regarding claim 16, the proposal in combination of Stiesdal and Albrich disclose the stator includes a number of stator segments so that each stator segment occupies an angular segment $\leq 45^\circ$ in the stator frame.

Regarding claim 17, the proposal in combination of Stiesdal and Albrich disclose the rotor includes an annular rotor frame and permanent magnets (17) mounted on the rotor frame.

Regarding claim 18, the proposal in combination of Stiesdal and Albrich disclose the stator includes several stator segments, and further comprising electrical connecting elements that electrically connect the electrical windings of the several stator segments to one another, the electrical connecting elements being arranged to run between the stator segments and being detachably connected.

Regarding claim 19, the proposal in combination of Stiesdal and Albrich disclose the stator frame includes a lower stator ring and an upper stator ring, between which the at least one stator segment is positioned.

Regarding claim 20, the proposal in combination of Stiesdal and Albrich disclose comprising several frame webs arranged to webs (32) between the lower stator ring

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and the upper stator ring essentially vertically to the stator rings, the stator segment being mounted to the webs.

Regarding claim 21, the proposal in combination of Stiesdal and Albrich disclose lateral faces of the frame webs lie on different radial planes of the stator and are angled relative to one another.

Regarding claim 22, the proposal in combination of Stiesdal and Albrich disclose the frame webs have different thicknesses between similar stator segments, so that a distance between adjacent stator segments is adjustable.

Regarding claim 23, the proposal in combination of Stiesdal and Albrich disclose several similar stator segments are provided so as to form a closed annular stator.

Regarding claim 24, the proposal in combination of Stiesdal and Albrich disclose the motor is a three-phase AC synchronous motor, in which the electrical windings form three coils in each stator segment, which windings are coupled with associated coils of other stator segments.

Regarding claim 25, the proposal in combination of Stiesdal and Albrich disclose a heat sink, which has at least one flow channel through which a coolant can flow, mounted on each stator segment.

Regarding claim 26, the proposal in combination of Stiesdal and Albrich disclose detachable channel connectors arranged to connect the flow channels of adjacent stator segments with one another in series.

Regarding claim 27, the proposal in combination of Stiesdal and Albrich disclose a temperature sensor installed in each stator segment to monitor temperature of the electrical winding in the respective stator segment.

Regarding claim 28, the proposal in combination of Stiesdal and Albrich disclose the stator is configured to encompass the rotor as an outer ring, and further comprising a bearing installed between the stator and the rotor, and a measuring system integrated in the torque motor for determining relative position of the rotor and the stator.


Regarding claim 31, the proposal in combination of Stiesdal and Albrich disclose each stator segment has its own housing.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Lam whose telephone number is (571) 272-2026. The examiner can normally be reached on tu-th 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thanh Lam
Primary Examiner
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